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The Effect of aerobics on reducing the pain of dysmenorrhea

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Abstract. Dysmenorrhea is a painful syndrome that accompanies the menstrual cycles that may disturb daily activities. Although many drugs are available to reduce dysmenorrheal pain, many women consider its side effects for taking regularly. Although exercise is generally thought to alleviate the dysmenorrhea, the scientific literature display mixed evidence. The aim of the research was to investigate the effect of aerobics on decreasing dysmenorrheal pain of women 20-25 years old.The research used quasi experiment with one group pretest-posttest design using 15 samples who are medical student of Syiah Kuala University. The data was analyzed using paired t-test to differentiate the score of pain before and after the aerobics exercise. The research was conducted from Januari to April 2012. The Average result dysmenorrheal pain scores using the Numerical Rating Scale (NRS); pretest (6.26) and posttest (3.26) (*P*= 0.00). It can be concluded that aerobics may reduce dysmenorrheal pain in women 20-25 years old.

Key words: Dysmenorrheal pain, women 20-25 years old, aerobics, exercise

Introduction

Dysmenorrhoea is lower abdominal pain such as cramping and pelvic pain that radiates to thigh and back without any pelvic pathologic picture (Chandran, 2008). Dysmenorrhoea is not a disease, but a symptom that arises due to the release of prostaglandin F2 alpha (PGF2α) excessive increases the amplitude and frequency of the uterus and cause uterine arteriolar vasospasm resulting in ischemia and lower abdominal cramps (Bobak, 2004). Primary dysmenorrhea is the most common type of dysmenorrhoeawhich occurs in more than 50% women, and 10-15% of them experienced severe pain which interfere their daily activities. Primary dysmenorrhea usually arise in adolescence, which is about 2-3 years after the first period and affect women at aged less than 25 years (Baradero, 2006).

Dysmenorrhoea is a physical problem not a psychic problem that may cause pain with dangerous level. For women, these conditions may bring unpleasant situation and can lead to disruption of daily activities and quality of life, causing school absenteeism and office, for example (Ramaiah, 2006). Looking at the impact of dysmenorrhoea, it can be said that dysmenorrhea is one of the problems in women life, forcing them to use various methods to prevent the occurrence of dysmenorrhoea. Besidetaking drugs, one effective way to prevent dysmenorrhea pain is exercising (Ramaiah, 2006). Light exercises are highly recommended to reduce dysmenorrhoea (Abbaspour et al., 2006). Abbaspouret al.(2006) found that women who regularly exercise may decrease the incidence of dysmenorrhea. This may be due to hormonal effects associated with the sport on the surface of the uterus, or increased levels of circulating endorphins. Many sports are a viable alternative for

reducing dysmenorrhea, one of which is aerobics. Thus the aim of this study was to find out the effect of aerobics on reducing the pain of dysmenorrhea.

Materials and Methods

A quasi experimental study was conducted using one group pretest-posttest design on college students aged 20-25 years old who suffered from dysmenorrhea and willing to take part in the study were included in the study. Participants with history of gynecological diseases such as uterine infection, uterinecysts, miomauteri, adenomyosis, and imperforate hymen and do not complete the intervention were excluded from the study. Before entering the study, all participants were examined usingUltrasonography (USG) to find out the gynecological diseases. The study was conducted from February to April 2012. To measure dysmenorrhea, researchers used the Numerical Rating Scale (NRS) ranged from 0 (no pain), 1-3 (mild pain), 4-6 (moderate pain), 7-9 (controlled severe pain) and 10 (uncontrolled severe pain) (Smeltzer, 2002).The aerobics exercises were performed in Unsyiah Sport Center three times a week for 45 minutes with the instructor until the next period ($\pm$ 1 month).The data was analyzed by paired t-test to determine the level of significance (α =0.05).

Results and Discussion

A total of 19 participants were examined for the study, only 16 were included in the study because 3 of them found had gynecological diseases after USG examination and 1 were not included in the analysis as she did not follow all the intervention. Therefore, it left 15 participants for analysis. Characteristic of participants can be seen in table 1.

Table 1. Characteristics of samples

Data	n	Mean	SD
Age (year)	15	20,46	0,51
Body weight (Kg)	15	54,26	10,68
Body height (cm)	15	155,06	6,20
BMI (Kg/m^2)	15	22,55	4,23

Figure 1 shows the percentageof pain level of dysmenorrheabefore and after intervention. It can be seen that the occurrence of severe pain are more before the intervention. On the other hand, the mild pain occur more after the intervention.

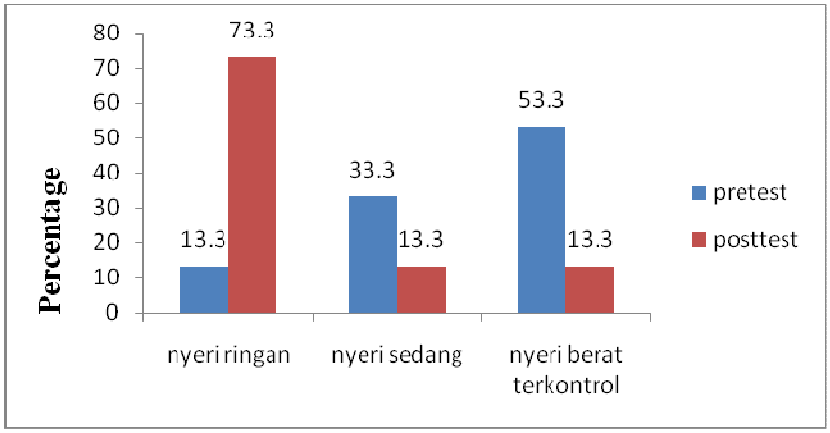

Figure 1 Percentage of pain level of dysmenorrhea before and after aerobics.

Analysis of pairedt-test (table 2) showed that the mean pain score of dysmenorrhea before intervention was 6.26 decreased to 3.26 after aerobic exercise sand the results showed the significance value of 0.000(p<0,05). So, aerobic exercise is a significant influence in reducing the level of pain of dysmenorrhea in women aged 20-25 years.

Table2 the difference of mean score of dysmenorrheal using NRS

Variable		n	Mean	SD	t	*p-value*
Pain	Pretest	15	6,26	1,90	6,275	0,000
	Posttest		3,26	1,98		

p<0,05shows a significant difference

It is consistent with study by Puji (2009) who found that exerciseis an effective method in reducing dysmenorrhea in adolescent girls at Senior High School in Semarang. Before exercise, the students' pain level was mild (7%), moderate (53%) andsevere pain (40%). After exercise, it showed changes in pain level; mild pain were 11 students (73.33%), moderate pain were 4girls (26.67) and no one was in severe pain. Similarly, research conducted by Novia (2009) found that exercises significantly decreased the incidence of dysmenorrhea (p<0,05). Martchelina (2011) also suggested that gymnastics can reduced ysmenorrhea pain in girls aged 12-17 years in junior high school in Jagakarsa.

Dysmenorrhea or painful menstruation is normal, but it can be extremely painful influenced by physical and psychological factors such as stress and the effects of prostaglandins and progesterone hormones. During dysmenorrhoea, the uterine muscle contracted due to an excessive increase in prostaglandin that causes vasospasm of the uterine arterioles. It can cause ischemia and cramping in the lower abdomen that will stimulate menstrual pain (Robert and David, 2004).

Women who experience dysmenorrhea said that they take medications or herbal medicine to reduce pain during menstruation. Therefore, it is needed a preventive

alternative to overcome dysmenorrhoea. After doing gymnastics, most women reported changes in pain that they feel (Widjanarko , 2006) .

Many sports are a viable alternative to reduce dysmenorrhoea, one of them is aerobics. By doing aerobics, it increases lung efficiency, so that, when women do aerobics routinely then they can store double oxygen per minute which can bring more oxygen even during blood vessel constriction that reducing pain. Physical training (aerobics) can also produce the hormone endorphin. Endorphins produced in the brain and spinal cord. This hormone can cause a sense of comfort and increasing endorphin levels in the body to relieve pain during contractions. Aerobic exercise is proven to increase levels f β -endorphin four to five-fold in the blood. The more doing exercises, the higher level of b-endorphin. B-endorphin will be excretedand captured by receptors in the hypothalamus and limbic system which serves to regulate emotion. Increasing in β-endorphin shown to be closely associated with decreasing pain, increase memory, improve appetite, sexual performance, blood pressure and respiration. So that aerobics is one of effective way in reducing pain, especially pain problems dysmenorrhoea (Abbaspour et al., 2006) .

Conclusions

It can be concluded that aerobics may reduce dysmenorrheal pain in women 20-25 years old.

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